

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001041**Date Inspected:** 18-Dec-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 2300**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Chen Xi**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Caltrans Mock-Up**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Ken Jobes, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, to randomly monitor welding and Quality Control (QC) functions. While on site, the QA Inspector observed and/or discovered the following:

The Caltrans QA Inspector randomly observed that two weld passes using Machine Submerged Arc Welding (SAW) had been made on Lower Shaft Assembly on the 114M Mock-Up, Weld No. MUC-MA107 B/C-3A. This is the outside weld of Skin B to Skin C. This is a complete joint penetration (CJP) weld and was welded in the flat groove (1G) welding position. The welder was Xu Yan (I.D. No. 052917), whose qualifications for this welding are listed in ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 7. Welding Procedure Specification (WPS) WPS-B-T-2221-C-U2b-S was being used for this weld. ZPMC CWI, Chen Xi (CWI No. 07072021) was present during welding as was Bureau Veritas Inspector, Hua Li Wei. The QA Inspector also noted that ZPMC's documentation of minimum/maximum preheat/interpass temperatures, voltage, amperage and travel speed by Chen Xi were within the specified ranges of the WPS for the two passes.

The Caltrans QA Inspector also observed the Machine Submerged Arc Welding (SAW) on Lower Shaft Assembly on the 114M Mock-Up, Weld No. MUC-MA107 B/C-4A. This is the outside weld of Skin A to Skin B. This is a complete joint penetration (CJP) weld and was being welded in the flat groove (1G) welding position. The welder was Xu Yan (I.D. No. 052917), whose qualifications for this welding are listed in ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 7. Welding Procedure Specification (WPS) WPS-B-T-2221-C-U2b-S-1 was being used for this weld. ZPMC CWI, Chen Xi (CWI No. 07072021) was present during welding as was Bureau Veritas Inspector, Hua Li Wei. The QA Inspector also noted that ZPMC's

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documentation of minimum/maximum preheat/interpass temperatures, voltage, amperage and travel speed by Chen Xi were within the specified ranges of the WPS for the pass being observed. The QA Inspector observed that the welding electrode shorted out against the scaffolding causing the welding to stop approximately 240 mm from the end of the joint. The QA Inspector observed the preparation of this area for continued welding, but welding did not resume during the time of observation. The QA Inspector observed that the CWI marked numerous areas to be ground prior to resumption of welding. Those areas were being worked on at the commencement of observation.

Note: A review of the two WPS's used above showed that WPS-B-T-2221-C-U2b-S-1 is used for the root pass and WPS-B-T-2221-C-U2b-S is used for fill and cap passes. This is due to the difference in welding parameters for the root pass versus remaining passes.

The Caltrans QA Inspector also observed the Semi-automatic Flux Cored Arc Welding (FCAW) on Upper Shaft Assembly on the 114M Mock-Up, Weld No. MUC-MA106 C/C-5B. This is the inside weld of Skin A to Skin E. This is a complete joint penetration (CJP) weld and was being welded in the horizontal groove (2G) welding position. The welder was Chang Chuancang (I.D. No. 053870), whose qualifications for this welding are listed in ZPMC's Master List of Welders/Welding Operators/Tack Welders, Revision 7. Welding Procedure Specification (WPS) WPS-B-T-2232-TC-U4b-F was being used for this weld. ZPMC CWI, Chen Xi (CWI No. 07072021) was present during welding as was Bureau Veritas Inspector, Hua Li Wei. The QA Inspector also noted that ZPMC's documentation of minimum/maximum preheat/interpass temperatures, voltage, amperage and travel speed by Chen Xi were within the specified ranges of the WPS for the pass being observed.

All observations appeared to meet the requirements of the job specifications.

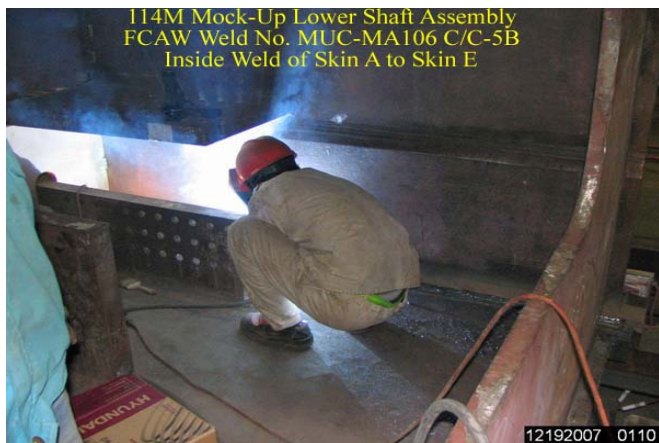
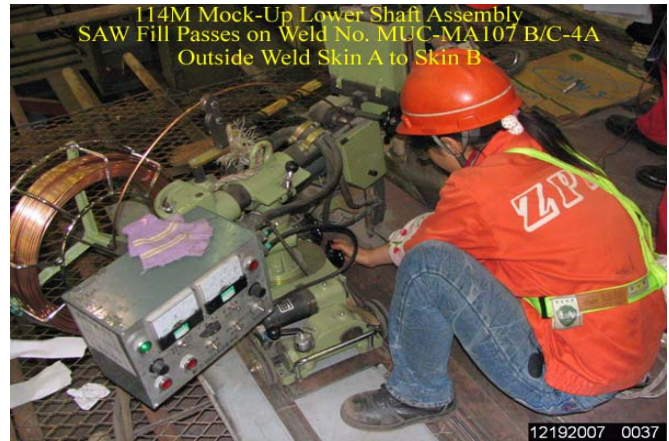


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## Summary of Conversations:

As identified within the contents of this report.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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**Inspected By:** Jobes, Kenneth

Quality Assurance Inspector

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**Reviewed By:** Cochran, Jim

QA Reviewer